REMARKS

The several claims that have been indicated to be allowable if rewritten in independent form have been so amended. Since the claims, as amended, include only those limitations present in the previous claims, it is submitted the claims have not been limited within the meaning of Festo.

Turning to the rejection of claims 1 and 48 as anticipated by WO 98/42446, in WO '446, a stream of charged nano drops is formed from a supply of liquid jetted through an electrostatic nozzle. This is quite different from Applicants' claimed invention in which an aerosol of particles is formed in a first region, and transported to a second region where a charge is applied to the particles. Then, an alternating electric field is applied in the second region to drive the charged particles from the aerosol and deposit the charged particles as oppositely charged layers on a substrate. In other words, in WO '446, movement of the charged particles towards the target substrate is provided by the mechanical force of the electrostatic nozzle. As distinguished therefrom, in the present claimed invention, particles are introduced into the deposition zone in an aerosol. In an aerosol, the particles have essentially zero velocity relative to the gas that carries them. WO '446 speaks of "The explosive disruption from the surface 52 forms small jets of liquid, which break up into a stream 53 of charged nano drops." (WO '446, page 7, lines 1-2.) That is to say, in WO' 446, the nano grams have a "momentum" in the direction of the target. (See the paragraph bridging pages 7-8 of WO '446.) In Applicants' claimed invention, the particles have essentially zero velocity relative to the gas that carries them, and no momentum towards the target substrate. Thus, these particles will not deposit unless they are motivated to do so by another force, which in the case of Applicants' claimed invention is the electric field imposed in the deposition zone. The use of an electric field independent of the creation of the

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aerosol as in Applicants' claimed invention is neither disclosed nor suggested in WO '446. Nor are the advantages in terms of position control, etc. achieved by the present claimed invention anticipated or obvious from WO '446.

Accordingly, it is submitted that claims 1 and 48 also are allowable over the art.

The foregoing amendment makes no claim changes as would require further search or consideration by the Examiner. Claims 1 and 48 have been amended merely to clarify the claims, while claims 3-5, 8, 14, 22, 23, 25, 28-30, 49, 52, 56, 59, 63, 64, 69, 70 and 71 have merely been rewritten in independent form. Accordingly, no new issues have been raised which would require further search or consideration by the Examiner. Thus, entry of the foregoing amendment, and allowance of the application is respectfully requested.

Credit card payment Form PTO-2038 in the amount of $1,848.00 for payment of 22 added independent claims accompanies this amendment.

In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account No. 08-1391.

Respectfully submitted,

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CERTIFICATE OF FACSIMILE TRANSMISSION PURSUANT TO 37 CFR 1.6(d)

I hereby certify that this correspondence is being transmitted via facsimile to the United States Patent and Trademark Office, Attn. Examiner R. Bawa at number 703-305-3592 on February 1, 2002.

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MARKED COPY OF CLAIMS

SERIAL NO. 09/299,388

DOCKET: MICRODOSE 99.01

MARKED COPY OF CLAIMS PER AMENDMENT D UNDER RULE 116:

1. (Twice Amended) A method for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby to drive said charged particles [are removed] from the aerosol and [deposited] deposit said charged particles as oppositely charged layers on said dielectric substrate thus forming a built-up deposit.

3. (Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said aerosol particles are charged.

4. (Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said aerosol particles comprise particles of dry powder.

5. (Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said aerosol particles comprise liquid droplets.

8. (Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said

aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said aerosol particles comprise a pharmaceutical.

14. (Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said alternating electric field has a magnitude between [1KV/cm] 1 kV/cm and [30KV/cm] 30 kV/cm.

15. (Amended) The method according to claim [1] 14, wherein [the frequency of] said alternating electric field [is] has a frequency of between [1Hz] 1 Hz and [100KHz] 100 kHz.

16. (Twice Amended) The method according to claim [16] 14, wherein [the duty cycle of] said alternating field [is] has a duty cycle different than 50%.

18. (Amended) The method according to claim [1] 14, wherein said alternating electric field is formed between a first electrode positioned at an end of said deposition zone opposite to and facing said dielectric substrate and a second electrode in contact with said dielectric substrate on the opposite side of where said deposit is formed.

22. (Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein substantially all of said aerosol particles are removed from said aerosol to form said deposit.

23. (Twice Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from

the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein the gas of said aerosol is selected from the group consisting of air, nitrogen, and nitrogen/carbon dioxide mixtures.

25. (Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said dielectric substrate comprises a packaging medium.

28. (Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said dielectric substrate comprises a pharmaceutical carrier.

29. (Twice Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said dielectric substrate comprises a carrier for carrying said deposit from said deposition zone to a location remote from said deposition zone for further processing.

30. (Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said dielectric substrate is edible.

48. (Twice Amended) A method for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby to drive said particles [are deposited] from the aerosol and deposit said charged particles as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode.

49. (Amended) [The] A method [according to claim 48,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said particles [are] comprise a solid or a liquid.

51. (Amended) The method according to claim [48] 49, wherein said particles comprise carrier particles coated with a bioactive agent.

52. (Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying

said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein said particles comprise a pharmaceutical.

53. (Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein said aerosol carrier is nitrogen gas.

54. (Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein said substrate comprises a blister pack.

55. (Twice Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of

said substrate opposite said underlying electrode, wherein said substrate comprises an electrically insulating material.

56. (Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein said substrate is comprised of an electrically conducting material.

57. (Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate sand said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein said electrically charging means employs a corona wire[.] or corona emitting points.

59. (Thrice Amended) [The] A method [according to claim 1,] for depositing particles onto a dielectric substrate comprising the steps of forming an aerosol of said particles in a first region; transporting the resulting aerosol to a second region, and applying a charge on said aerosol particles in said second region, positioning said charged aerosol particles in a deposition zone located in said second region proximate to said dielectric

substrate, and applying an alternating electric field formed in said deposition zone between a first electrode positioned in said second region and a second electrode positioned underlying and in contact with said dielectric substrate whereby said charged particles are removed from the aerosol and deposited as oppositely charged layers on said dielectric substrate thus forming a built-up deposit, wherein said electrically charging means includes a charge source comprising a solid dielectric member, a first electrode in contact with one side of said solid dielectric member, a second electrode in contact with an opposite side of said dielectric member, with an edge surface of said second electrode disposed opposite said first electrode to define an air region at the junction of said edge surface and said solid dielectric member, and means for applying an alternating potential between said first and second electrodes to induce ion producing electrical discharges in the air region between the dielectric member and the edge surface of said second electrode.

60. (Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein said electrically charging means includes triboelectric charging of said aerosol particles[.] or induction charging of said aerosol particles.

63. (Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first

region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein said aerosol particles are charged within said deposition region.

64. (Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein said electrically alternating field has a magnitude between about 1 kV/cm [an] and about 30 kV/cm.

65. (Amended) The method according to claim [48] 64, wherein said electrically alternating field has a frequency of oscillation between about 1 Hz and 100 kHz.

66. (Amended) The method according to claim [48] 64, wherein the duty cycle of the alternating field is adjusted to provide maximum efficiency of said particle deposition.

67. (Amended) The method according to claim [48] 64, wherein said electrically alternating field is formed between a first electrode positioned at one side of said deposition region opposite and facing said substrate and a second electrode contiguous to said substrate.

69. (Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first

region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein the pattern of deposited material is defined by an electrically conducting mask disposed adjacent said charging means.

70. (Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein the aerosol particle mass flow is monitored whereby the mass of deposited particles is controlled.

71. (Twice Amended) [The] A method [according to claim 48,] for depositing particles onto a surface of a substrate that comprises forming an aerosol of said particles in a first region, moving said aerosol to a second region, electrically charging said particles in said second region, and providing an alternating electric field between an electrode underlying said substrate and said aerosol particles in said second region whereby said particles are deposited as a built-up deposit of oppositely charged layers on the surface of said substrate opposite said underlying electrode, wherein multiple deposits are made using multiple deposition regions supplied from a single aerosol source by multiplexing the application of the alternating deposition field between the deposition regions.